

MARINE REVIEW

A large steamship is shown from a side-on perspective, moving through the water. The ship has multiple decks, a prominent funnel with a white 'M' on a dark background, and several masts with complex rigging. A large banner is draped across the middle of the ship's hull. The background shows a distant shoreline with industrial buildings and smokestacks under a hazy sky.

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Salvage of S. S. "Steel Chemist"

THE refloating of a big ship after it has been almost hopelessly stranded is a dramatic event and one that is of great interest to many elements in the maritime industry. First of all, assuming that there are no human casualties, it is important to the owners who would otherwise lose substantially and be unable to replace the vessel at an early date or at anything near its original cost. It is important to the cargo owners regardless of insurance, and it is of great importance to the underwriters, in this case running into millions of dollars.

The saving of a ship is also of profound interest to those whose skills and equipment were proven on one of the toughest of assignments; and important to the salvage master who, in this instance, tops many years of similar personal triumphs.

In the following laconic report there is to be read none of the drama, the responsibility, the human and property values involved in a great venture. You have to read the detailed story which follows to get the engineering skill, the invaluable equipment, and the vital timing which saved the great ship and most of its cargo. To float the *Steel Chemist*, Pacific Towboat & Salvage Company, and Smith-Rice Derrick Barges, Inc., joined forces and together rendered successful salvage services to the *Steel Chemist* under the capable direction and control of Walter Martignoni as salvage master. Fortunate indeed for the owners, the skippers, and the underwriters that such skills and equipment were available, and called promptly into service. The engineering skill was primarily that of Walter Martignoni, of Pillsbury and Martignoni. The equipment was fundamentally the Smith-Rice Derrick and Salvage Barge No. 5. Martignoni had the able collaboration of William H. Collins of Pacific Towboat & Salvage Company, Captain Edison D. Brown, and Charles Rice, George F. Mitchell and L. P. Kelly of Smith-Rice Derrick Barges, Inc. Floating equipment included Pacific Towboat & Salvage Company's tug *Kanak*, the San Pedro Tug Boat Company's

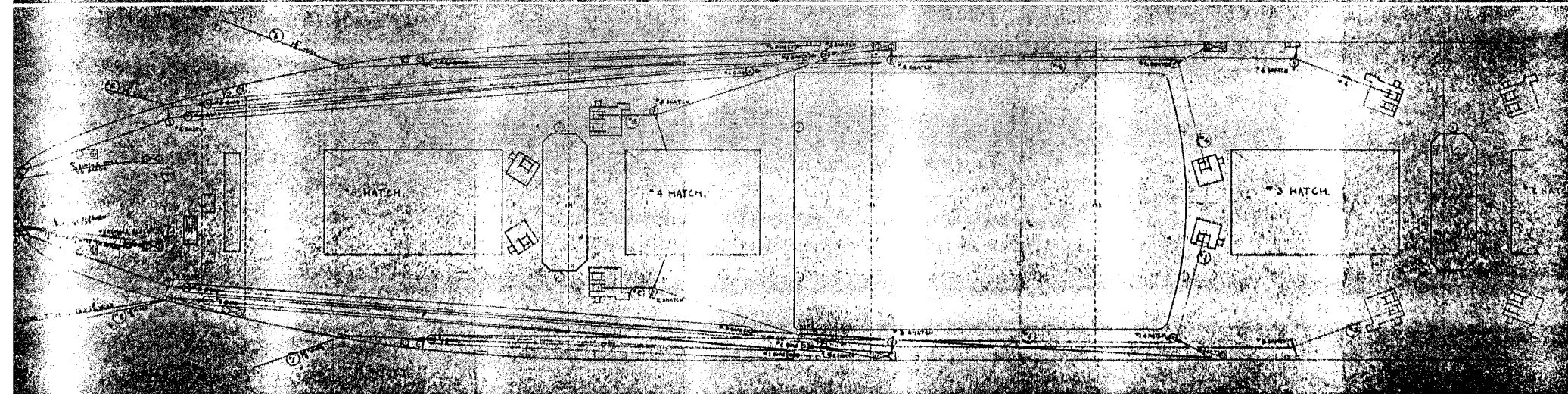
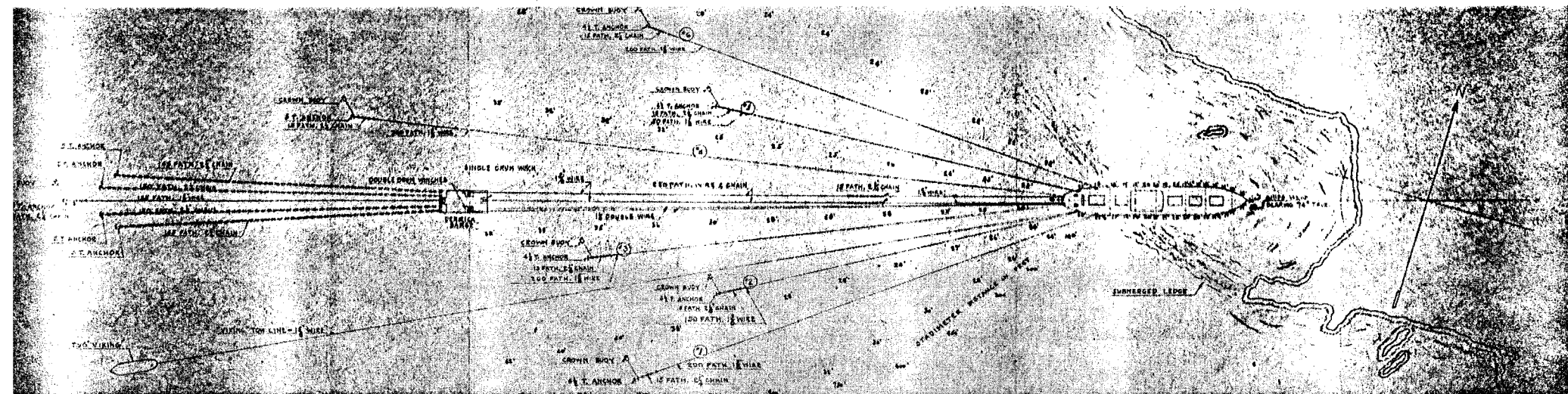
Walter Martignoni of the firm of Pillsbury and Martignoni. One of the world's best known marine surveyors, he was salvage master on the "Steel Chemist" job.



tug *Relief*, the tug *Viking*, and the tugs *Crowley 9*, *Crowley 27*, and *Crowley 24*. Also the *Pacific Retriever*, *Palomar* and barge *Hemlock*. The pooling of the equipment of the joint salvors did the trick. Without such pooling, and the pooling of engineering and salvaging skill, success might not have been possible.

The *Steel Chemist*, with 7,992 tons of valuable cargo on board, had stranded in a thick fog on the south side of the northwest corner of San Nicolas Island approximately 70 miles off the coast of California early on the morning of April 10, 1949. She was ashore for her entire length on a rocky and gravel beach with a pinnacle rock ledge beneath her No. 4 hold. There was an exposed rock ledge about 225 feet from her starboard bow and exposed pinnacle rocks 150 feet on her port bow. A reef breaking at half tide was off her port quarter. She was exposed to all weather conditions, in the position shown on Sketch No. 2. She was floated at 2150 on April 15, 1949, and was thereafter towed into Long Beach Harbor where she was securely moored at Pier A, Berth 1, at 1300 on April 16, 1949.

The values at risk to the underwriters of the *Steel*



Top: This sketch (No. 2) shows the "Steel Chemist" resting on a submerged ledge. The figures around the hull indicate the depth of the water in feet. The greatest depth is 23' 6" at the stern and the minimum depth 18' at several places along the port side. The ship's draft of 29' 5" suggests how far out of the water the hull stood. The ship had run ashore on one of the season's highest tides at a better than 16 knot speed. Stretching from the stern in this sketch are nine 1 5/8" steel wires and a double length of 1 1/4" wire. Five of the wires go to 4 1/2-ton anchors and one to a 5-ton anchor. Leading from the Smith-Rice Derrick Barge are four 2 1/4" chains to 5-ton anchors and one 1 5/8" wire to the 7-ton anchor. A 1 5/8" wire runs from the ship to the tug "Viking."

Bottom: This sketch (No. 3) shows the complicated system of attaching the cables to the ship in such a manner that when power was applied, the pull at all points was equal.

Chemist were very great. She was insured for \$2,500,000. The cost of repairing the damage suffered by her was \$418,235.00. Her cargo was valued at approximately \$1,570,600. After deducting the cost of repairs, there was a salvaged value to the underwriters and owners of approximately \$3,651,765, less owner's incidental expenses. That great sum was at stake and was saved to them.

The *Steel Chemist* is a C-3 cargo vessel, built in 1943 by Ingalls Shipbuilding Corp., and owned by Isthmian Steamship Lines. She is a steel vessel of 4560 net and 7956 gross tons, 468 ft. 5 in. long, 69 ft. 6 in. beam, and 29 ft. 5 in. draft. Homeward bound from Netherlands East Indies by way of Los Angeles with a 7992 ton cargo of sugar, shredded coconut, rubber, and general, she stranded in a dense fog on San Nicholas Island, near Santa Barbara, California, on April 10, 1949.

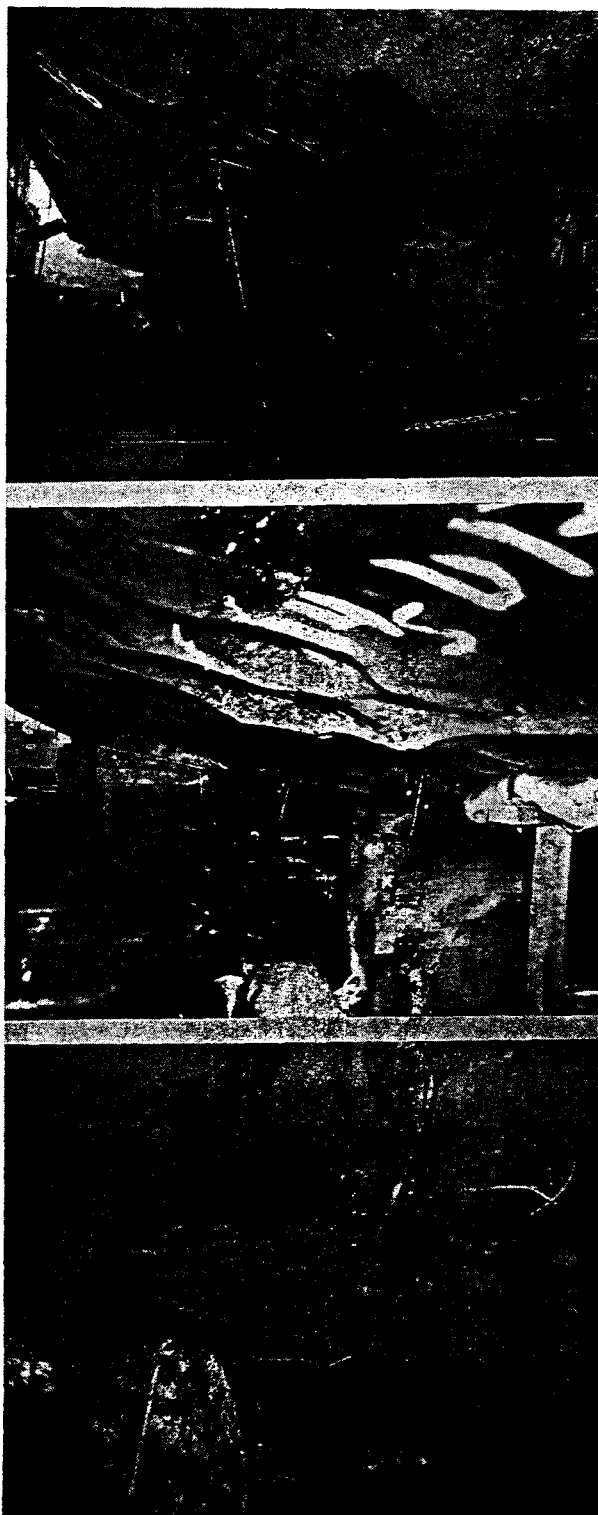
Martignoni was engaged by the joint venture as salvage master by telephone to San Francisco, and he made tentative preparations for a "salvage plant" by telephone before flying to Long Beach. The advance preparations included the assembling of necessary and available equipment on board tugs and barges in readiness for towing to scene of stranded vessel. A day's conferences were held with salvage contractors and owner's representatives, and by radio telephone with Capt. Collins of the tug *Kanak* at the scene of the wreck. Capt. Collins reported that it was imperative that steps be taken first to preserve the vessel and cargo from further damage while plans for floating the ship were carried out. The Coast Guard Cutter *Diligence* had taken a manila line from the *Steel Chemist* at 1840 on April 10, and the *Kanak* had taken over with a steel line at 2100, and with anchors planted and engines going full speed ahead, maintained a steady strain on the stranded vessel to prevent her broaching broadside to or working further ashore. Approval was obtained for the Navy tug *Viking*, which was at the scene, to assist. Martignoni and Charles Rice of the Smith-Rice Company reached the *Steel Chemist* through continuing heavy weather at 0600 on April 12.

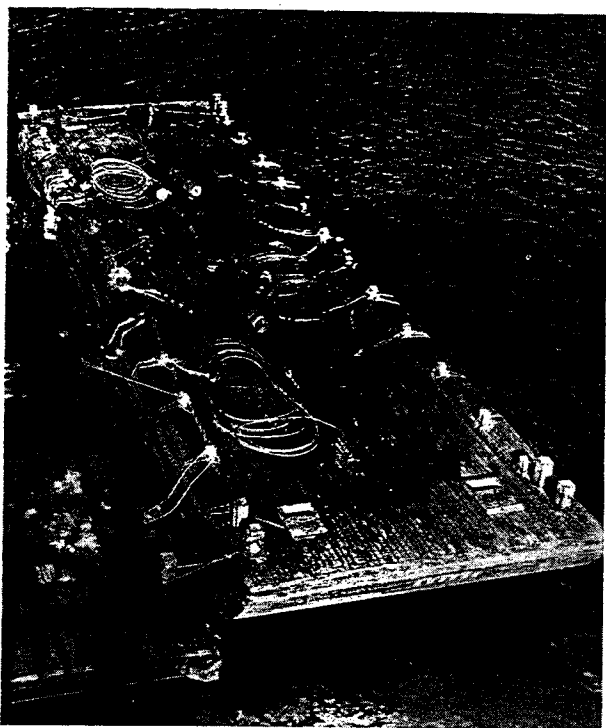
The ship had stranded for its full length on the south side of the northwest corner of the island at about 0650 on April 10, while proceeding at full speed in the fog on top of one of the highest tides of the year. The draft at time of stranding was 22' 04" forward and 25' 10" aft, the vessel having lifted about 1 foot forward and 2 feet aft, when stranding, on a rock and gravel shelving with a pinnacled rock ledge beneath No. 4 hold. The reef was breaking astern of port quarter, at half tide, and the ship listed 5° to port. She was exposed to all weather conditions, excepting for some protection from the northeast, and open to heavy seas and swells resulting from the combination of exposed location and peculiar currents in that area. All double bottoms, except No. 4 starboard and No. 6 port and starboard were leaking beyond control. The unbroached double bottoms, and also the after peak, were ballasted to further weight the ship on the bottom while beach gear was being laid out.

Considering the initial loss of buoyance at stranding, the additional loss when practically all double bottoms were open to the sea and flooded, and further that tides

were receding, any restoration of the lost buoyance could be accomplished only by displacing the flooded areas with air and removing the weight of some cargo. Adverse weather prevented mooring any type of vessel alongside

Three views of the ship's bottom showing the scraping damage caused in passing over the reef, and the "settling" damage caused as the vessel settled its full length onto the rocks.





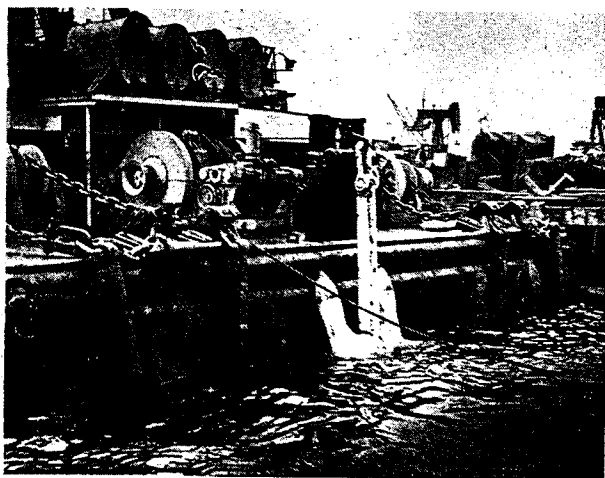
Barge 2735 with part of its rope and steel cable ready for the salvage task on the "Steel Chemist."

to receive cargo, so cargo was jettisoned until weather altered.

The plan determined upon was the jettisoning of the lowest value cargo (sugar), increasing the ship's buoyancy aft and trimming by the head to relieve the full flat surface pressure. The vessel in this condition would pull with less effort, and the floating effect of heavy swells would be more effective with the after end lighter on the bottom so the hull could be eased over the hard pinnacled area beneath No. 4 hold. For jettisoning purposes an opening was cut in the ship's side, and the discharge begun.

Not anticipated was the running short of fuel oil in the *Steel Chemist*, and the need for replenishment, which

Beach Gear on the Smith-Rice Derrick Barge No. 5. The big anchor in the center is 7 tons.

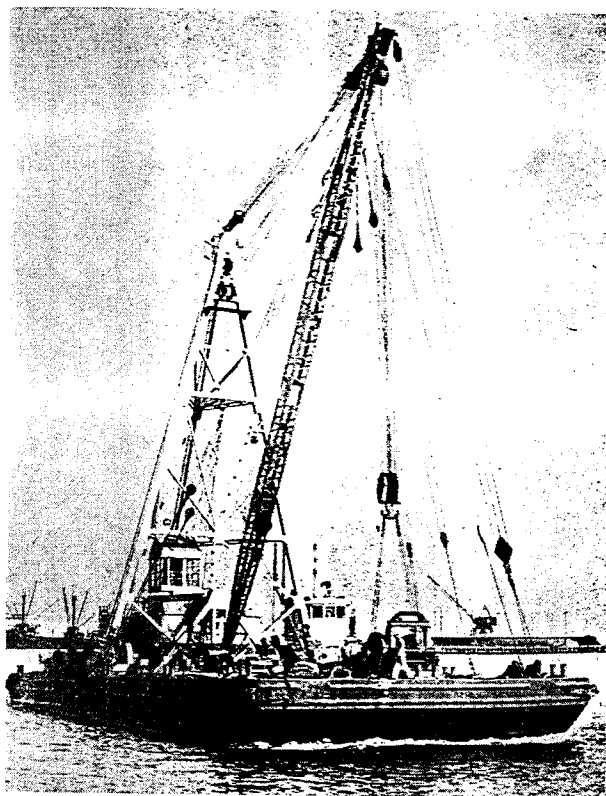


required the *Viking* to return to Long Beach for 586 barrels of Navy fuel which was pumped into the ship's bunkers, and the need for the *Viking's* subsequent trip to replenish her own supply. She also brought out 12 additional workmen.

The carefully planned laying out of beach gear on barges and vessel's deck, and the intricate securing of wires to their respective moorings paid off when the perfectly timed pulling began. The attaching of cables over drums on hauling winches and to bitts and lugs was the work of a genius.

When all was ready the tug *Relief* maneuvered the giant Smith-Rice Derrick and Salvage Barge No. 5 into position 1500 feet astern of the *Steel Chemist* and secured with four 5-ton and one 6-ton anchors. Cables to the ship were attached as diagrammed in sketches 2 and 3. A signal system was arranged between the ship and all attending floating equipment.

From the hour 1400 to 1630 on the 15th, compressed air was applied to the various double bottom tanks to displace the water. Then, with the objective of lightening

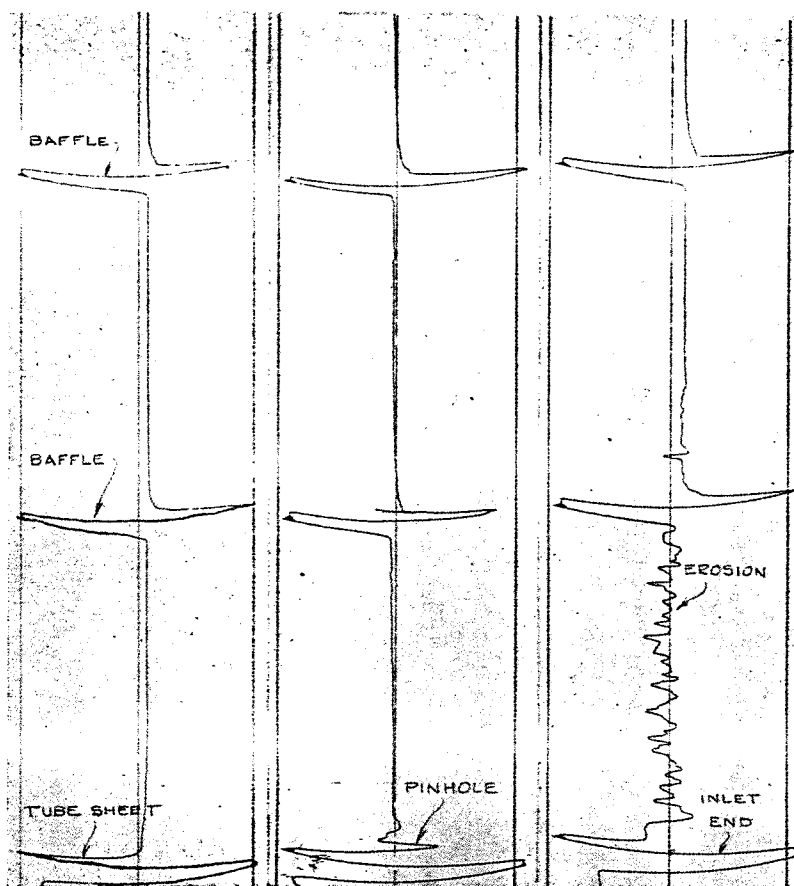


Key unit in the big salvage operation was Smith-Rice Company's Derrick Barge No. 5. Length 135 ft.; breadth 50 ft.; depth 11 ft.

The boom is fabricated steel and is 110 ft. long from its base. The main hoist is powered with a 360 HP torque drive gas engine. The swing engine and deck machinery are powered with electric motors. Generators are 200 KW Diesel. The lifting capacity of No. 5 is 100 tons. Base is Long Beach Harbor.

the vessel more aft than forward, double bottoms 1 and 2 and fore peak were left partly flooded.

With heavy swells from the sea increasing, momen-
(Please turn to page 40)



"Probolog" charts for three individual tubes as logged on the "Mission Santa Ana" and the "Pamanset."

three individual tubes as logged on these vessels. The first figure is a recording of a perfect tube. Except for the deviations at the baffles, the pen drew a straight line. The second illustrates a pinhole failure in an otherwise sound tube. The third is a good example of extensive erosion of the metal that has occurred at the inlet end of the tube. Although this tube was still in service, it is safe to say that in a short time failure would occur.

The Probolog has been in use for years in many West Coast oil refineries and power plants. To introduce it to the marine industry, Naval Architect Morris Guralnick recently arranged for its demonstration at a meeting of the Society of Port Engineers at San Francisco, and is making tests like those described herein. His office is in the Transport Building, Foot of Mission Street, San Francisco. The Shell Development Company has prepared an illustrated pamphlet describing the workings of the Probolog in detail which may be obtained on request from Morris Guralnick.

Salvage of S.S. "Steel Chemist"

(Continued from page 34)

tarily raising the water line, and with all men at their respective stations, a heavy strain was taken on all sets

of beach gear and pulling cables from Derrick Barge No. 5 and the *Viking's* manila hawser. With each succeeding series of swells the vessel responded to the heavy pulling and at 2100 started working slowly
(Please turn to page 74)



Left: Charles Rice of the Smith-Rice Company, joint salvor with the Pacific Towboat & Salvage Company on the "Steel Chemist" venture. Days and nights of work on the part of the salvors and the crew of the vessel paid off in the successful saving of the ship with very few hours to spare.

Clam shell buckets discharging sacked sugar from the hold. A total of 950 tons was thus removed.

This picture shows the proximity of the vessel to the shore. A reef extends from the shore right under the stranded vessel. The barren nature of the island is also indicated.

